9/17/99

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/661,677	09/14/2000	Anders Khullar	47253-00012	9545

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EXAMINER	
RAMPURIA, SHARAD K	
ART UNIT	PAPER NUMBER
2683	8

DATE MAILED: 09/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/661,677	KHULLAR ET AL.	
	Examiner	Art Unit	
	Sharad Rampuria	2683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *7/17/03* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10-19,21 and 22* is/are pending in the application.

4a) Of the above claim(s) *9 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-19,21 and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Response to Amendment

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lapaille et al., Royer, Ryde et al., Claude, Bengtsson et al., Lysejko et al., Cullen, John Michael, Bliss, David H., Ghisler et al.

Applicant's arguments with respect to claims 1-8, 10-19, 21-22, have been considered but are moot in view of the new ground(s) of rejection.

Claims 9, & 20 are cancelled.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 7-8, 14-19, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birchler et al. in view of Bengtsson et al.

1. Regarding claim 1, Birchler disclosed A method for estimating residual noise in a frequency range of a desired part of a signal received via a digital cellular radio system, the desired part of the received signal representing a selected channel of the digital cellular radio system (col.4; 11-36 & 46-60), the method comprising:

Birchler fails to disclosed transmitting, via the digital cellular radio system, the noise estimation measure or a post-processed version of the noise estimation measure to a link quality control system of the digital cellular radio system. However, Bengtsson teaches in an analogous art, that modifying the amplitude of the received signal, the received signal including the residual noise; (Col.6; 33-59)

combining the received signal with modified received signal to create a noise estimation measure; (Col.7; 1–15) and

transmitting, via the digital cellular radio system, the noise estimation measure or a post-processed version of the noise estimation measure to a link quality control system of the digital cellular radio system. (Col.3; 8–40 & col.7; 16-30) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include transmitting, via the digital cellular radio system, the noise estimation measure or a post-processed version of the noise estimation measure to a link quality control system of the digital cellular radio system in order to provide measuring and reporting link quality in a cellular telecommunication system.

2. Regarding claim 2, Birchler disclosed The method according to claim 1, wherein the noise estimation measure is based on an average power content of the signal and the modified signal over their frequency spectra. (Col.5; 53 – col.6; 11)

3. Regarding claim 3, Birchler disclosed The method according to claim 2, wherein the noise estimation measure is based on the average power content of the signal and the modified signal over one or more common ranges of their frequency spectra. (Col.5; 53 – col.6; 11)

4. Regarding claim 4, Birchler disclosed The method according to any one of claims 1 to 3, wherein the signal is attenuated primarily outside a frequency range of the desired part of the signal. (Col.5; 53 – col.6; 11)

5. Regarding claim 5, Birchler disclosed The method according to claim 2 or 3, wherein the noise estimation measure is based on a difference in average power content between the signal and the modified signal. (Col.5; 53 – col.6; 11)

7. Regarding claim 7, Birchler disclosed The method according to claim 4, wherein the signal is attenuated primarily outside the frequency range of the desired part of the signal via a digital filter. (Col.4; 11-26)

8. Regarding claim 8, Birchler disclosed The method according to any one of claims 1 to 3, wherein the noise estimation measure is quantized in a number of different levels each indicating different levels of noise present. (Col.7; 39-60)

14. Regarding claim 14, Birchler disclosed An apparatus for estimating residual noise in a frequency range of a desired part of a signal, received via a digital cellular radio system, the desired part of the received signal representing a selected channel of the digital cellular radio system (col.4; 11-36 & 46-60), the method comprising:

Birchler fails to disclosed transmitting, via the digital cellular radio system, the noise estimation measure or a post-processed version of the noise estimation measure to a link quality control system of the digital cellular radio system. However, Bengtsson teaches in an analogous art, that means for modifying an amplitude of the received signal, the received signal comprising the residual noise; (Col.6; 33-59)

means combining the received signal with modified received signal to create a noise estimation measure; (Col.3; 8–40 & Col.7; 1–15) and

means for transferring the noise estimation measure to a processing unit. (Col.3; 8–40 & Col.7; 1–15)

means for storing consecutive values of the noise estimation measure. (Col.3; 8–40 & Col.7; 1–15)

means for processing the consecutive values to a extract trend. (Col.3; 8–40 & Col.7; 1–15)

means for transmitting, via the digital cellular radio system, the noise estimation measure or a post-processed version of the noise estimation measure to a link quality control system of the digital cellular radio system. (Col.3; 8–40 & col.7; 16-30) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include transmitting, via the digital cellular radio system, the noise estimation measure or a post-processed version of the

noise estimation measure to a link quality control system of the digital cellular radio system in order to provide measuring and reporting link quality in a cellular telecommunication system.

15. Regarding claim 15, Birchler disclosed The apparatus according to claim 14, wherein the means modified for combining the signal with the signal to create a noise estimation measure comprise a power meter for measuring average power content of the signal and the modified signal over at least one of a plurality of common ranges of their frequency spectra. (Col.5; 53 – col.6; 11)

16. Regarding claim 16, Birchler disclosed The apparatus according to claim 14 or 15, wherein the means for modifying the amplitude of the signal comprising the noise include means for attenuating the signal primarily outside the frequency range of the desired part of the signal. (Col.5; 53 – col.6; 11)

17. Regarding claim 17, Birchler disclosed The apparatus according to claim 15, wherein the means for combining the signal with the modified signal to create a noise estimation measure comprise means for computing a difference in average power content between the signal and the modified signal. (Col.5; 53 – col.6; 11)

19. Regarding claim 19, Birchler disclosed The apparatus according to claim 18, wherein the means for attenuating the signal primarily outside the frequency range of the desired part of the signal comprise a digital filter. (Col.4; 11-26)

21. Regarding claim 21, Birchler disclosed An apparatus for estimating residual noise in a frequency range of a desired part of a signal, received via a digital cellular radio system, the desired part of the received signal representing a selected channel of the digital cellular radio system (col.4; 11-36 & 46-60), the method comprising:

Birchler fails to disclosed transmitting, via the digital cellular radio system, the noise estimation measure or a post-processed version of the noise estimation measure to a link quality control system of the digital cellular radio system. However, Bengtsson teaches in an analogous art, that means for modifying an amplitude of the received signal, the received signal comprising the residual noise; (Col.6; 33-59)

means combining the received signal with modified received signal to create a noise estimation measure; (Col.3; 8–40 & Col.7; 1–15) and

means for transferring the noise estimation measure to a processing unit. (Col.3; 8–40 & Col.7; 1–15)

means for storing consecutive values of the noise estimation measure. (Col.3; 8–40 & Col.7; 1–15)

means for processing the consecutive values to a extract trend. (Col.3; 8–40 & Col.7; 1–15)

means for transmitting, via the digital cellular radio system, the noise estimation measure or a post-processed version of the noise estimation measure to a link quality control system of the digital cellular radio system. (Col.3; 8–40 & col.7; 16-30) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include transmitting, via the digital cellular radio system, the noise estimation measure or a post-processed version of the

noise estimation measure to a link quality control system of the digital cellular radio system in order to provide measuring and reporting link quality in a cellular telecommunication system.

Claims 6, 10-13, 18, & 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birchler et al.& Rude et al. further in view of Borras et al.

6. Regarding Claim 6, The above combination disclosed all the particulars of the claim except the signal is a digital signal. However, Borras teaches in an analogous art, that A method according to any one of claims 1 to 3, wherein the signal is a digital signal. (Col.3; 14-27) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include the signal is a digital signal in order to provide a signal usability without the availability of a synchronization pattern.

10. Regarding Claim 10, The above combination disclosed all the particulars of the claim except communicated to a link quality control system of said digital cellular radio system as an estimator of current link quality. However, Borras teaches in an analogous art, that A method according to claim 9, wherein a noise estimation measurement is performed during each of the basic time units of a channel of the digital cellular radio system, and the result is communicated to a link quality control system of the digital cellular radio system as an estimator of current link quality. (Col.6; 48-65) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include communicated to a link quality control system of said digital

cellular radio system as an estimator of current link quality in order to provide parameter in identifying an acceptable communication resource is signal usability.

11. Regarding Claim 11, The above combination disclosed all the particulars of the claim except communicated to a link quality control system of said digital cellular radio system as an estimator of current link quality. However, Borras teaches in an analogous art, that A method according to claim 9, wherein several noise estimation measurements are performed, the results are stored, and the results are evaluated, and a derived trend is communicated to a link quality control system of a digital cellular radio system as an estimator of current link quality. (Col.6; 48-65) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include communicated to a link quality control system of said digital cellular radio system as an estimator of current link quality in order to provide parameter in identifying an acceptable communication resource is signal usability.

12. Regarding Claim 12, The above combination disclosed all the particulars of the claim except the noise estimation measure transferred to the link quality control system is used by the digital cellular radio system to optimize user information channel throughput by adjusting at least one of the data transmission rate, the error correction depth, and a type of modulation. However, Borras teaches in an analogous art, that A method according to claim 9, wherein the noise estimation measure transferred to the link quality control system is used by the digital cellular radio system to optimize user information channel throughput by adjusting at least one of the data transmission rate, the error correction depth, and a type of modulation. (Col.7; 1-14) Therefore, it

would have been obvious to one of ordinary skill in the art at the time of invention to include the noise estimation measure transferred to the link quality control system is used by the digital cellular radio system to optimize user information channel throughput by adjusting at least one of the data transmission rate, the error correction depth, and a type of modulation in order to provide the reusable communication resources.

13. Regarding Claim 13, The above combination disclosed all the particulars of the claim except the noise estimation measure is transferred to a digital demodulator and used to adjust a receiver algorithm. However, Borras teaches in an analogous art, that A method according to claim 9, wherein the noise estimation measure is transferred to a digital demodulator and used to adjust a receiver algorithm. (Col.7; 1-14) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include the noise estimation measure is transferred to a digital demodulator and used to adjust a receiver algorithm in order to minimizing the number of communication resources.

18. Regarding Claim 18, The above combination disclosed all the particulars of the claim except the signal is a digital signal. However, Borras teaches in an analogous art, that An apparatus according to claim 14 or 15, wherein the apparatus is adapted to handle digital signals. (Col.3; 14-27) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include the signal is a digital signal in order to provide a signal usability without the availability of a synchronization pattern.

22. Regarding Claim 22, The above combination disclosed all the particulars of the claim except communicated to a link quality control system of said digital cellular radio system as an estimator of current link quality. However, Borras teaches in an analogous art, that The mobile telephone according to claim 21 adapted to perform a noise estimation measurement during each of a plurality of basic time units of a channel of the digital cellular radio system. (Col.6; 48-65) Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include communicated to a link quality control system of said digital cellular radio system as an estimator of current link quality in order to provide parameter in identifying an acceptable communication resource is signal usability.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharad Rampuria whose telephone number is 703-308-4736. The examiner can normally be reached on Mon-Thu. (6:30-4:00) alternate Fri.(6:30-3:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on 703-308-5318. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

Sharad k. Rampuria
September 15, 2003

WILLIAM TROST
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